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मानक



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Mazdoor Kisan Shakti Sangathan

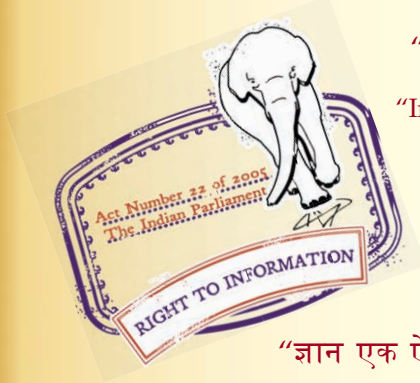
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“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 10551 (2005): Zircon mullite refractories for glass furnace applications [MTD 15: Refractories]



“ज्ञान से एक नये भारत का निर्माण”

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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
काँच की भट्टी के प्रयोजनों के लिए जिरकॉन
म्यूलाइट की अग्निसह सामग्रियाँ — विशिष्टि
(पहला पुनरीक्षण)

Indian Standard
ZIRCON MULLITE REFRACTORIES FOR
GLASS FURNACE APPLICATIONS —
SPECIFICATION
(*First Revision*)

ICS 81.080

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Refractories Sectional Committee, had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1983. In this revision, following modifications have been made:

- a) Reference clause has been added;
- b) Chemical composition has been modified; and
- c) Physical characteristics have been modified.

This standard has been prepared for specifying the requirements of zircon mullite refractories used for bottom paving of glass tank furnaces. This type of refractories is used as the top most layer in the composite construction of the glass tank bottom because of its superior corrosion resistance to molten glass.

This type of refractory products can be produced by pressing, pneumatic ramming or slip casting and therefore, the requirements of bulk density and apparent porosity for items produced by these three methods have been specified separately in this standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ZIRCON MULLITE REFRACTORIES FOR GLASS FURNACE APPLICATIONS — SPECIFICATION (*First Revision*)

1 SCOPE

This standard specified the requirements for fired refractories bricks and shapes consisting mainly of alumina, zirconia and silica for glass furnace applications.

2 REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
1528	Methods of sampling and physical test for refractory materials:
(Part 2) : 1974	Determination of refractoriness under load (<i>first revision</i>)
(Part 4) : 1974	Determination of cold crushing strength (<i>first revision</i>)
(Part 6) : 1974	Determination of permanent change after reheating (<i>first revision</i>)
(Part 7) : 1974	Methods of sampling and criteria for conformity (<i>first revision</i>)
(Part 8) : 1974	Determination of apparent porosity (<i>first revision</i>)
(Part 10) : 1974	Determination of size of refractory bricks (<i>first revision</i>)
(Part 12) : 1974	Determination of bulk density (<i>first revision</i>)

3 CHEMICAL COMPOSITION

3.1 The material shall comply with the following

requirements of chemical composition:

Zirconium oxide (ZrO_2), <i>Min</i>	18 percent
Aluminium oxide (Al_2O_3), <i>Min</i>	65 percent
Silica (SiO_2), <i>Max</i>	15 percent
Iron oxide plus titanium oxide ($Fe_2O_3+TiO_2$), <i>Max</i>	1.5 percent

3.2 The method of chemical analysis shall be as agreed to between the manufacturer and the purchaser.

4 PHYSICAL PROPERTIES

The material shall comply with the requirements specified in Table 1 for physical characteristics.

5 DIMENSIONAL TOLERANCE

5.1 The measurement for dimensions of the product shall be done in accordance with IS 1528 (Part 10).

5.1.1 Regular Bricks

At least 95 percent of the bricks in a lot shall meet with the maximum tolerance of ± 1 percent or ± 1.0 mm whichever is greater.

5.1.2 Taper Shapes

Tapered bricks shall have maximum taper tolerance of ± 1.5 mm.

6 FREEDOM FROM DEFECTS

Refractories shall be compact, of homogeneous texture and free from cracks, voids and other flaws. They shall be burnt evenly throughout and shall have sufficient mechanical strength and no soft corner.

7 SAMPLING

The procedure for sampling and the criteria for conformity shall be as laid down in IS 1528 (Part 7).

Table 1 Physical Characteristics of Zircon Mullite Refractory

(Clause 4)

Sl No.	Characteristic	Requirement	Method of Test, Ref to IS No.
(1)	(2)	(3)	(4)
i)	Bulk density, g/cc, <i>Min</i>	3.10	1528 (Part 12)
ii)	Apparent porosity, percent, <i>Max</i>	20 (for pressed product)	1528 (Part 8)
iii)	Permanent linear change after heating at 1 450 °C, for 2 h, percent, <i>Max</i>	± 0.50	1528 (Part 6)
iv)	Refractories under load ta°C, <i>Min</i>	1 650	1528 (Part 2)
v)	Cold crushing strength, MPa, <i>Min</i>	50	1528 (Part 4)
vi)	Corrosion resistance	Values to be decided between the purchaser and the manufacturer depending upon type of glass and furnace consist	

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

website : www.bis.org.in

Regional Offices:

	Telephones
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 2323 7617 2323 3841
Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 260 3843 260 9285
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
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